

Onset of Poiseuille flow in a confined soft glass

Pinaki Chaudhuri, Juergen Horbach

In several natural phenomena and practical applications, material flow occurs due to non-uniform stress fields. Poiseuille flow is one such flow geometry. The advent of microfluidic devices has led to exploration of such flows for soft materials in narrow confinements. For soft glasses, which are characterized by the existence of a yield stress, such a flow thus provides an opportunity to study the interplay between the imposed stress gradients and the correlated processes that cause flow in these materials. Using numerical simulations, we study this flow scenario during the yielding of a confined colloidal glass.